Agricultural Statistics for Public Policy Issues

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It is an honor to address the *Agricultural Statistics 2000* conference. I particularly want to welcome to the United States the visitors from some 50 nations around the world attending today's conference.

My comments today focus on agricultural statistics for addressing public policy issues. I will begin with a short discussion of the demand for agricultural statistics and put their use in the context of the public policy process at USDA. Then, I'll present a couple of examples of public policy issues and the use of statistics. I have chosen these to show how statistics have improved the policy process and where statistics have raised some concerns. Last, I want to offer a few thoughts on challenges you as leaders in the statistical community face in the quest to improve statistics and for making them more effective in the public policy process.

To start, then, is the issue of why we and so many of you have such strong, organized programs of agricultural statistics, and why it is so important that we continue to improve them. At USDA, we face a very strong and rising demand for information. We hear from the private sector, including farmers and businesses that store, transport, process, and market agricultural goods, from those who supply goods and services to producers, and from consumers. Researchers and advocacy groups also demand statistics. All these private parties generally want statistics so they can better pursue their economic self-interest, which means they want to manage their businesses more profitably, influence policy and increase public understanding of their industry.

Governments at all levels also have a strong demand for statistics. Statistics are needed to administer programs and to measure economic performance. Moreover, statistics help shape public policy decisions.

This demand for statistics is met by two sources — private and public. Private sources bear the cost of data collection and often sell their statistics. Public sources, such as NASS, are funded by the taxpayer and their statistics are usually free. Economists explain the use of taxpayer funds to provide statistics this way. Agricultural statistics can improve market efficiency because more widespread and equitable access to objective information can hasten price discovery and resource use. A key question is how far should the government go in providing statistics? To answer that, we must constantly review our efforts to ensure that we collect what people need and want, and what the private sector cannot collect and make readily available. The answer is complicated by the fact that the roles of the public and private sector do not remain static but must change over time.

Our public policy debates are often about issues that extend beyond the interests of private individuals because decisions concern what is best for society as a whole. And that may require statistics that are not in the interests of the private sector to collect. Private decision-making is simpler because the parties to the decision can weigh the costs and benefits to them of alternative actions. Public policy is much more complex. These decisions are based on a hard-to-define blend of physical science, social science, law, politics, moral principles, budget constraints, and facts. These facts are sometimes agricultural statistics. Three points are clear: 1) we may need publicly collected rather than private statistics in order to get needed information on the broader impacts on society; 2) we need to recognize

that agricultural statistics are just one element that enters into the public policy process; and 3) we need to recognize that no single element dominates the public policy process.

In the public policy process, agricultural statistics may be properly used, ignored or misused. The ideal case would go something like this. A public policy concern arises and government agencies and others identify the scope of the issue using, among other information, agricultural statistics. Analytical models use the statistics to evaluate different courses of action. A policy choice is made and then agricultural statistics are used to monitor and assess the choice. In this ideal case, the fruits of your work, statistics, play a role throughout the public policy process — from the initial debate, to program changes or to legislation, and to program implementation and evaluation.

But we sometimes see less-than-ideal cases. There is some attempt to use statistics, but statistics are dismissed and disparaged, or statistics are deliberately misused or very selectively used so as to mislead. About a year ago, I had a first-hand experience of how some legislators view the fine art of data collection and analysis. Following a sharp downturn in milk prices, Congress called a hearing on what the Administration was going to do to help dairy producers. The hearing focused on the Department's use of a cheese price reported by a commodity exchange. We used that price to regulate the price of some milk in our Federal Milk Marketing Order program. The exchange came under scrutiny following a university study that concluded the exchange was subject to manipulation by large milk processors, since trading volume was light or "thin." The professors concluded that cheese prices, and therefore milk prices, were lower as a result of manipulation. At the request of dairy producers and Congress, NASS began a national survey of cheese manufacturers to determine the average U.S. wholesale price of cheese.

One well-known senator was particularly concerned that USDA was taking too long to establish the survey, so he pressed the Secretary and me at the hearing on what was holding up NASS's survey. I told him we were working with the industry to establish reporting guidelines to ensure the integrity of the data. After all, we needed to establish the specifications and procedures and test the data. Ensuring accuracy and a good response would take a couple of months.

The senator felt a couple of months was unacceptable. He indicated we could find out the price of cheese in one day by simply telephoning cheese plants and asking them what their price is. To make his point, he had us send him a list of every U.S. cheese plant, and he told his staff to phone them all. Within a couple of days, the senator telephoned the Secretary indicating the results of his survey, which produced a price well above the going exchange price. His data suggested we needed to raise the regulated price of milk. The senator may have been less concerned about the quality of the data collected and more concerned about the final result — a higher price for dairy farmers.

Well, how did the story turn out? A couple months later, NASS published the results of our survey, which turned out to be very close to the price quoted on the exchange and much lower than the senator's price. The NASS survey has withstood the test of time and is recognized as being a reliable and accurate measure. A sound statistical process prevented a problem.

Let me say that I believe we are most often closer to the ideal case than to the worst cases. Analysis coupled with supporting data is a powerful factor in public policy decisions. Although analysis and data do not always determine public policy outcomes, my experience is that decision-makers usually welcome such information because it informs the discussion.

When we fall short of the ideal case, it is often because many involved in public policy do not fully understand the nature of the agricultural statistics being used and end up unintentionally misusing them. Sometimes the data have a high variance, which is often not appreciated, or they are incomplete. Let me give you another example.

The issue of food security has continual national importance. It received global prominence with last year's World Food Summit. For the United States, food security often focuses on trade policy and our foreign assistance programs rather than on immediate domestic security, although that is also a concern. In other countries, the issue may be defined quite differently — for example, in North Korea, food security is obviously an immediate domestic policy concern.

One way to assess food security is to compare food supply with demand. But a book by Nicholas Eberstadt, *The Tyranny of Numbers*, points out things are not that simple. Measures of agricultural production are far from perfect, even in countries with sophisticated statistical systems. In some countries, where food security is likely to be a major concern, production estimates may be very incomplete. Measures of food stocks are likely to be a problem. In world grain markets today, some of the largest players have only a weak handle on their grain supplies because much of production and stock holding does not enter into commercial channels and is held by the farm household.

On the food demand side, measures of population are also subject to error. Assessments of the past U.S. population censuses suggest an error rate of 2.5 percent, and much larger in many other countries. As recently as 1980, some nations had never published a census of population, yet population data were reported and used in food security assessments.

These types of analyses often produce a ratio, such as calories in the food supply per person. That is then compared to an estimate of trend food consumption or a nutrition-based minimum. These point estimates have been used as precise guides for policy decisions, such as how to allocate international food assistance programs. Changes in these measures over time may be used to indicate the performance of public policies. My point is not that analyses of food security are futile — the work is critically important. In fact, a conclusion would be that more needs to be done so that hunger, malnutrition and even starvation are not masked by incomplete data.

A growing issue in the policy process is the need to better understand and use distributional data. This is very important for sectors or markets that are diverse and where structure is changing rapidly. A good example is the strong interest here in the structure of agriculture, which often focuses on the size distribution of farms. Seventy years ago, 30 percent of the U.S. population lived on farms and there were 6½ million farms. Now, about 3 percent of the population live on 2 million farms. Under this rapid change, larger farms have been accounting for an increasing share of production. This has raised a policy concern: will small farms disappear in the U.S.?

I won't try to define a small farm or even a farm. But we know that in 1996, three-fourths of all U.S. farms, using our definition of a farm, had gross sales of less than $50,000, and that is a level that we consider to be too low to earn a living just from farming. Even though these were three-fourths of all farms, they accounted for only 20 percent of agricultural production. At the other size extreme we find relatively few but very large farms. This diversity creates many an opportunity for the misuse of statistics. First, this range of size and economic structure rules out a single statistic to reflect farm financial conditions. The size distribution tells us that you have to look at off-farm income to draw conclusions about the well-being of the majority of farms. Second, policies concerned with preserving the number of farms cannot be justified on the need to maintain adequate food supplies — data simply

do not support that argument. Third, when regulatory burdens are imposed on farms, the impacts on large and small farms are likely to be very different. Yet public policy decisions often fail to consider the differential effects on large versus small farms.

Public policy concerns about food security or who will be the next generation of farmers need to be based on more complete and complex information. That brings me to another concern I want to raise — public policy toward statistics.

To assure that there are adequate agricultural statistics for sound public policy, there must be good public policy regarding statistics. Public support for statistics programs must be thoughtful, not based on some simple funding formula. Some time ago, the magazine *Government Executive* had an article called "Statistical Stagnation," which was very critical of the money spent on agricultural statistics. It said alarmingly, "the government collects statistics not just *about* farmers but *for* farmers." Ironically, that is one of the public good justifications for collecting statistics, besides the benefits to other parties and more efficient markets. The author did make some good points about the need for statistical programs to respond to a changing economy. However, the article advanced a simplistic and false idea that public expenditures on agricultural statistical programs should be proportional to agriculture's contribution to Gross Domestic Product.

Your institutions face many challenges, including budget pressures, dealing with data users having varying degrees of competence, and a constantly evolving agricultural sector. These challenges can be met, but not automatically or without great effort. They will be met if and only if public officials have an enlightened attitude about the value of statistics and what it takes to collect them. You sitting in this audience, the world's key agricultural statisticians, have a pivotal role in ensuring governments have a clear, supportive and enlightened policy toward the collection and dissemination of agricultural statistics.

What must you do? I want to end by identifying four things — call them objectives or challenges. The first is "build trust." Statistical agencies must increase the public's and public officials' trust. The public will support data collection efforts if they are confident that the system has integrity. Integrity means confidentiality is protected, estimates are accurate and objective, and the system is immune from political manipulation. In USDA, some agricultural statistics reports are considered market sensitive and prepared under lock-up conditions prior to public release. Every precaution is taken to ensure everyone has equal access to the data. In recent years, NASS estimates have been used to establish payments for certain types of insurance programs and to settle futures contracts. Links like those between Federal statistics and private-sector delivered programs increase the need for trust in the system.

The second challenge is "communicate." Agricultural statisticians have an obligation to communicate with policy officials and the public to help ensure that statistics are not misunderstood or misused. Similarly, public officials and users of statistics should feel a responsibility to use statistics appropriately, but we can't expect them to be statisticians, so it is very important that you reach out to communicate proactively with policy officials.

A few years ago, an economist named Bruce Gardner gave a Fellows Lecture to the American Agricultural Economics Association entitled, *How the Data We Make Can Unmake Us: Annals of Factology*. He offered some valuable lessons for those who work with statistics. He said, "…social scientists tend to take data as facts. The facts these data are meant to establish are important facts — the price of food, the well-being of farmers, their costs of production, the productivity of agriculture,

etc. The problem is that data are not facts. Facts are what is really there. Data are quantitative representations of facts, which statistical workers and economists concoct." He goes on to caution economists and policy makers, "Data are raw material but not natural resources — we create the data, and this is the source of problems." He sees this as a special problem for policy officials who, lacking analysis, rely on the data speaking for themselves.

A third challenge is "anticipate." Statistical systems must strive to anticipate information needed for public policy issues. Statistics that arrive after a decision has been reached have little value, while timely responses reinforce the status of statistics in shaping public policy.

The 1992 Economic Report of the President devoted an entire chapter to economic statistics. In that chapter, it is argued that statistical information must be relevant, timely and adapt to change. The point is particularly important for agricultural statistics because we are in a time of great change in domestic policy, trade policy, trade patterns, structure of production and structure of marketing. For example, the development of genetically modified organisms (GMOs), policy changes in welfare and food assistance programs, food safety concerns, environmental regulation and monitoring, and global marketing are creating additional demand for agricultural statistics. Unless statistical agencies can successfully argue for budget increases, covering a new area means curtailing another. To avoid this unattractive tradeoff, statistical agencies need to be flexible, adaptive and innovative. You can't make mistakes, and that means users, like economists and policy officials, should be involved in decisions to collect data.

The fourth challenge is "adopt new technologies." Just as farmers need to keep adopting new technologies to be competitive and stay in business, agricultural statisticians need to look to new technologies to live within the limited funds available. On the dissemination end, statistical agencies are using the Internet, fax on demand, electronic bulletin boards and CD-ROM releases, as well as traditional hard copy. The big changes yet to come are on the primary data collection end. Electronic interaction with respondents holds promise. One U.S. farm organization has already tried to improve on NASS's crop production estimates using a large panel of on-line producers. So far, they have not been too accurate, but we are watching them carefully.

Remote sensing of all types seem to have potential. Portable computers, cellular phones, and automated record keeping from tractor mounted devices with global positioning are tools that must be seriously evaluated for data collection.

Seven USDA agencies make use of satellite and aerial data to better perform their missions. Imagery is used to assess domestic and foreign crop conditions, and to map, monitor, and manage agricultural and forestry resources. This imagery, from U.S. and foreign satellites as well as aircraft, provides timely and accurate intelligence about land cover conditions.

We are now on the threshold of a new generation of satellites that will provide much greater accuracy with sensors that will collect much more data than in the past. Statistics managers will face new challenges with pressures for greater storage capacity, greater selectivity in imagery used, and more time for analysis.

Although new technology will be a valuable data source, sources like the Census of Agriculture and data reported by farmers and agribusiness will remain a solid foundation upon which new tools, like remote sensing can contribute.

Ladies and gentlemen, I hope I have launched your conference on a positive note, sometimes a difficult thing for an economist to do. Much of my message has been to discuss the context in which agricultural statistics are collected and reported. I wanted to issue the challenge that you, the leaders in the world of statistics, need to play a decisive role in the formulation and execution of sound public policy by anticipating and communicating with users about the right data to collect, collecting it well, and communicating its limits. Sometimes the negotiating table in the policy process is too exclusive — too small and too crowded. But policy decision-makers increasingly may need to find a way to keep statisticians nearby to illuminate the data path toward sound public policy decisions.